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New record of the rare Long-snouted Bat, *Platalina genovensium* Thomas, 1928 (Chiroptera, Phyllostomidae), in the Azapa valley, northern Chile

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Abstract: *Platalina genovensium* is a poorly known bat species from the west coast of Peru and Chile, considered as near threatened because of its narrow range of distribution. There are few records in Peru, and only one record in the Azapa valley, northern Chile from the year 1996. Here we report a new record for *P. genovensium* for the Azapa valley 19 years afterwards, confirming the presence of the species in the Arica y Parinacota region, Chile.

Key words: Arica y Parinacota region; columnar cacti; desert ecosystem; echolocation; Lonchophyllinae

Platalina genovensium is a poorly known bat species, with a distribution from the west coast of Peru to northern Chile (Galaz et al. 1999; Griffiths and Gardner 2008; Velazco et al. 2013; Aragón and Aguirre 2014). This species was described by Thomas (1928) from a single individual collected in the department of Lima, Peru. Considered as an endemic Peruvian bat species (Sahley and Baraybar 1996; Pacheco 2002; Parlos et al. 2014), the Long-snouted Bat was captured in Chile only one time during April and July 1996 (Galaz et al. 1999) in the Azapa valley, Arica y Parinacota region.

The Long-snouted Bat feeds primarily on nectar and pollen from the cacti *Weberbauerocereus weberbaueri* (Sahley 1995, 1996), *Neoraimondia arequipensis, Corryocactus brevistylus* (Aragón and Aguirre 2007), *Browningia candelaris* (Velazco et al. 2013) and *Armatocereus procerus* (Zamora et al. 2013), and a lesser extent on insects and fruits (Sahley and Baraybar 1996), providing important ecosystem services through pollination and seed dispersal for those cactus species (Sahley 1996). This species lives in caves and human constructions, and forms small colonies, with a maximum of around 50 individuals, where male and female individuals are separated by sex (Malo de Molina et al. 2011; Sahley and Baraybar 1996).

Platalina genovensium is considered Near Threatened by the IUCN because of its narrow distribution and fragile habitat of columnar cactus, and because their populations are probably decreasing at a rate of less than 30% over 10 years (Pacheco et al. 2008).

We present here a new record for *P. genovensium* in Chile, after 19 years since the last time this species was recorded in the country, and confirm its presence in the Azapa valley.

We used monofilament mist nets (Ecotone, Poland) to capture bats in an old mine at the Azapa valley, Arica y Parinacota region, northern Chile (18°31′24.96″ S, 070°08′01.15″ W) (Figure 1). Mist nets were installed at dusk (19:45 hrs) and kept open for five hours. Captured individuals were placed in cloth bags for examination according to the resolution (RE7547/2015) from the Chilean wildlife service. Individuals were measured morphologically using a 0.1 mm calliper and a 50 gr Pesola spring scale, and photographed for identification (Figure 2). At the moment of the release, we recorded the echolocation call of the individual using a Pettersson D240X ultrasound microphone (Pettersson Elektronik AB Uppsala, Sweden) connected to a Zoom H2n (Zoom Inc. Tokyo, Japan) digital recorder. For the recordings, researchers were situated 10 m from each other, one of them released the bat and the other researcher waited for a normal flight of the bat to obtain good quality echolocation calls.

The captured male individual of *Platalina genovensium* shared the characteristics of the species described

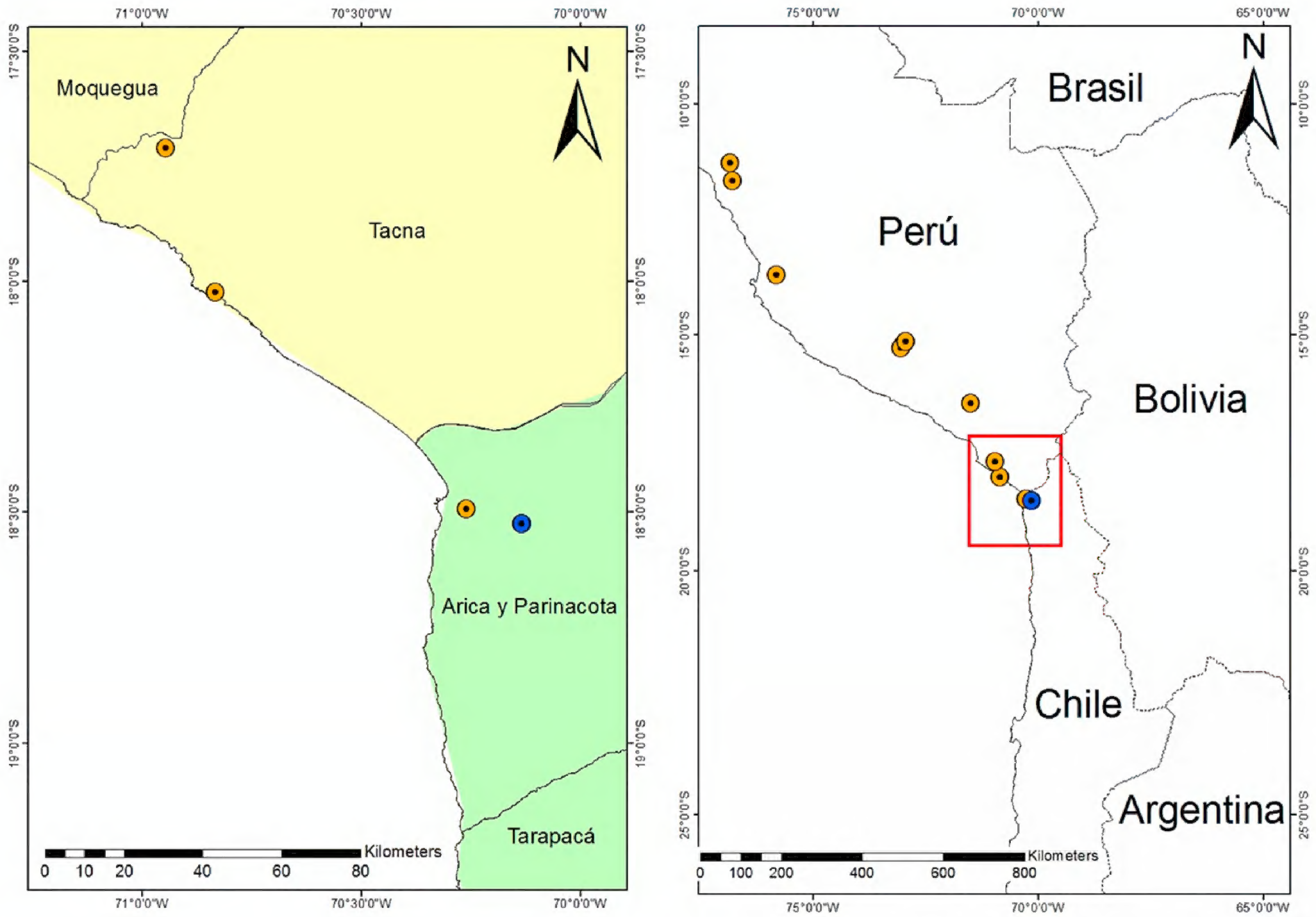

Figure 1. Distribution map of extant localities for *Platalina genovensium* in southern Peru and northern Chile (yellow circles). The blue circle represents the new record. Adapted from Galaz et al. (1999); Aragón and Aguirre (2007); Malo de Molina et al. (2011); Velazco et al. (2013); Zamora et al. (2013); and Aragón and Aguirre (2014).

Figure 2. Adult male *Platalina genovensium* captured at the Azapa valley, northern Chile.

by Phillips (1971) and Griffiths and Gardner (2008): Rostrum clearly longer than the braincase, greatly elongated muzzle, reduced molars and premolars, upper outer and inner incisors in contact, forearm longer than 40 mm (Figure 2; Table 1). We compared morphological measurements obtained in the field with other published data from Peru and Chile (Sahley and Baraybar 1996; Galaz et al. 1999; Aragón and Aguirre 2007; Velazco et al. 2013; Zamora et al. 2014) (Table 1). We observed that the captured individual present similar values for weight, forearm length and total length than those published in the literature. The values measured are also similar with those published for the male individuals captured in Chile 19 years ago.

We also compared the echolocation calls obtained from the captured individual at the moment of the release, with published echolocation calls (Malo de Molina et al. 2011) from Peruvian individuals (Figure 3). We observed similar characteristics for both sonograms, with a modulated frequency (FM) shape for the pulses, with a series of harmonics from 42.2 kHz to 111.9 kHz. The duration of the pulses is short 1.98±0.11 ms and the interval between pulses in variable 90.08±13.79 ms.

Platalina genovensium was last captured in Chile in 1996 in the Azapa valley (Galaz et al. 1999). Here we confirm the presence of this species with a recent capture of a male individual. This new record fills a lapse of 19 years with no records of the species in Chile, which could be the result of a lack of bat surveys in the area (Valladares et al. in preparation).

Earlier captures were done during the months of April and July, but this new record was made during

Table 1. Morphological measurements (mm) for captured male individuals of *Platalina genovensium*.

Reference	N	Weight (grams)	Forearm length	Ear length	Tragus length	Total length
This study	1	18	49.2	13.4	6.8	82.2
Velazco et al. 2013	1	15.5	50	19	_	82
Zamora et al. 2013	11	19.35 ± 1.86	49.93 ± 0.63	_	_	_
Aragón and Aguirre 2007	7	17.2 ± 3.47	49.44 ± 1.76	17.21 ± 1.93	_	81.29 ± 5.56
Galáz et al. 1999	2	16	48.3	13	7.3	84
Sahley and Baraybar 1996	44	19.5 ± 1.3	50.0 ± 1.17	_	_	_

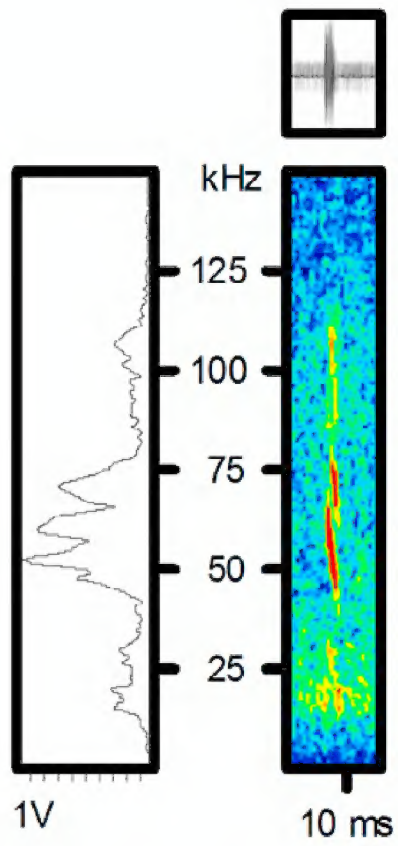

Figure 3. Sonogram of a characteristic pulse of *Platalina genovensium*, Y-axis represents frequencies (kHz) and X-axis represents time (ms) Spectrogram was created using Avisoft SAS Lab Pro V5.2.07 (Avisoft Bioacoustics, Berlin, Germany). Parameters were: Fast Fourrier Transform length: 512; frame size 100%; Overlap 75%.

November, extending the presence of this species to later in the year. The Azapa valley presents an agricultural matrix, with presence of diverse tropical fruits as *Mangifera indica*, *Musa* spp., *Passiflora* spp., etc., ornamental flowers, and exotic cactus species that could be a potential source of food for the Long-snouted Bat and allow its presence during the whole year.

Noteworthy is the relationship between *P. genovensium* and the cactus *Browningia candelaris* in Chile, which is classified as Data Deficient by the IUCN (Faundez et al. 2013), but with its population in decline (least 50% over the last 40 years). *Platalina genovensium* is a pollinator for various species of cactus, but there are no studies focused on the presence of this bat in places where *B. candelaris* occurs, such as at Quebrada Cardones Natural Monument, between 2,000 and 2,700 m above sea level (a.s.l.) in Arica province (Rosello and Belmonte 1999).

In Peru, several studies have found lairs of *P. genovensium* above 1,000 m a.s.l. Malo de Molina et al. (2011) recorded it from Acos at 1,571 m a.s.l. and Santa Rosa at 1,320 m a.s.l. (Department of Lima), and Zamora et al. (2013) found a lair at 1,300 m a.s.l. in the Department of Ica. Both studies correlate the presence of *P. genovensium* with the presence of columnar cacti. More studies in the region of Arica y Parinacota are needed to determine the altitudinal distribution of *P. genovensium*, as the actual records in Chile are from 200 to 500 m a.s.l., but *B. candelaris* grows above 1,000 m a.s.l. (Rosello and Belmonte 1999).

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